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16 MAR 1914

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BY
JOHN J. LLOYD, JR., M. D.,
Catawba Sanatorium, Va.

WILLIAMS PRINTING COMPANY,
Richmond, Va.

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[Reprinted from the Virginia Medical Semi-Monthly, Nov. 21, 1913.]

DIETETIC TREATMENT OF TUBERCULOSIS.*

By JOHN J. LLOYD, JR., M. D., Catawba Sanatorium, Va.

In considering this phase of treating tuberculosis, it will be well to recall that one of the prime characteristics of the disease is rapid and progressive loss of weight. To repair that already having taken place and to prevent further loss is one of the essential factors of treatment.

No rigid rules as to dietary can be laid down, for cases differ so widely that each must be treated on its own merits. An acute tuberculosis in a young adult requires very different handling from an early case in one who is up to his standard weight and shows only slight symptoms. A blacksmith and a banker will hardly eat with relish the same dietary, nor will a woman of sedentary habits require the same food as a day laborer. It is necessary to furnish each patient with a well balanced ration and this must be based largely upon the taste and previous habits as to eating.

The average healthy adult on moderate exercise has been proven to require about 3000 calories of food per day. Men require slightly more in proportion to weight than do women. Young people require proportionately more than

*Read before the forty-fourth annual meeting of the Medical Society of Virginia, at Lynchburg, October 21-24, 1913, as a part of the Symposium on Tuberculosis.

older, this because the younger the cell the greater the avidity and rapidity of oxydizing food for tissue use. Thin people require considerably more than fat, due to more rapid loss of heat through radiation.

The human race has profited by years of experience, instinct and taste in choosing a dietary suitable and sufficient for the maintenance of health. The standard dietary (Hutchinson) consisting of 125 grams proteid, 50 grams fat and 500 grams carbohydrate, based upon experimentation and yielding 3000 calories, is closely approximated by the meals served on many well kept tables. Generally speaking, fat and carbohydrate can be substituted one for the other to large extent; hence, the proportion of the two and the form in which they occur depend largely upon the financial condition and taste of the individual.

It is a recognized fact that recovery from any infection depends upon the establishment of an immunity toward this infection and that the result of continued under-feeding is to produce a condition of lowered resistance to disease. Under-nourished cells must maintain life first, and what energy they have to spare can be used in producing immune bodies; therefore, we must endeavor to furnish an extra supply of nourishment to the cells in order that they in turn may produce the immunity necessary for recovery.

The method of forced feeding so much in vogue a few years back has, happily for the pa-

tient, fallen into well deserved disrepute. To overload continually a digestive system already embarrassed by general toxemia and under-nourishment was only heaping insult upon injury, and was the direct cause of converting many hopeful into hopeless cases, or at least of materially retarding their progress toward recovery. The day of stuffing patients simply because they happen to have tuberculosis is past and we need only mention it to condemn it.

Let our aim be to supply all the nourishment the patient needs in health and a little extra on account of his disease and endeavor to increase the bodily weight to its previous normal, before tuberculosis became active, or slightly above and keep it there; in other words to bring about a condition of slightly over-nourished cells so that they may have a good balance on deposit to spend in ridding the body of its infection. Excessive weight gain is neither essential nor desirable but a return to the normal or slightly above is to be desired.

Experience has conclusively proven that the tuberculous patient not only tolerates but requires a considerable increase in the proteid and fat ration. Additional proteid is necessary to repair the tissue waste and more fat to save heat loss. As the carbohydrate is the bulky food constituent, the amount is slightly reduced and its equivalent made up in proteid and fat which should preferably be of animal origin, as this class of these foods has been found more valu-

able in tuberculosis than that of vegetable origin. The proteid content is best supplied by meat, eggs and milk—the fat by milk, cream, butter and the yolk of eggs and bacon. Hence it will be seen that if we prescribe, in addition to three well balanced meals, three pints of milk with a slight increase of meat and butter, the proper amount of food is obtained.

For instance, a dietary such as the following furnishes the necessary quantities of food constituents for a patient with unimpaired digestion:

Breakfast—8 A. M.—Fresh fruit, cereal, breakfast bacon, 2 eggs, soft boiled or poached, biscuits, coffee, milk and butter.

Lunch—10:30 A. M.—Glass of milk.

Dinner—1 P. M.—Soup, roast beef, mashed potatoes, stewed tomatoes, boiled spinach, corn pones, gelatine jelly and cake, milk and butter.

Lunch—4 P. M.—Glass of milk.

Supper—6 P. M.—Creamed chicken, grits, hot rolls, cocoa or hot tea, milk and butter.

Lunch—9 P. M.—Glass of milk

The above is only an illustration of many combinations which may be made at moderate cost. Where cost must be still more considered, the proteid ration may be furnished by using the cheaper cuts of meat and the fat content furnished in the form of fat bacon and oleomargarine.

In feeding children the requirements of the case are different. It must be borne in mind

that children require proportionately more food for their weight than do adults. Children also have a considerably greater tolerance for fats, and therefore they should receive more milk, butter, bacon, etc., proportionately than the adult.

Open air treatment goes hand in hand with dietetic treatment, for life in the open air sharpens the appetite, stimulates the digestion and lessens the toxemia. If to these two is added rest, while symptoms are present, we have the tripod upon which recovery depends. It is hard to overestimate the benefits of rest in tuberculosis, and especially its effect upon the digestive system. We have repeatedly seen rest in bed overcome long standing dyspepsia, thus enabling the patient to consume and assimilate a proper amount of food. The body at rest requires considerably less food than when at work to maintain health; consequently we can see the desirability of keeping patients quiet in order that the least possible amount of waste and the maximum amount of nourishment be produced.

So much for generalities—now to consider the indications in feeding patients in the different stages of the disease and in dealing with complications. In the very early case, before symptoms, especially derangement of digestion, are marked, very little alteration of a general home diet is necessary. If the patient's weight is about normal and he be put on the rest treat-

ment and given three good meals and three pints of milk in addition, he will get more than the required amount for the body in health, and therefore enough food for his needs. Cases diagnosed at this stage are unfortunately very few, for the patient does not feel sick enough to see a physician or the disease is not recognized at this time.

In much the larger number of instances the case is not diagnosed until the moderately advanced or far advanced stage is reached, when symptoms are much more pronounced.

Indigestion and lack of appetite are among the conditions we most often have to face in feeding patients. Total loss of appetite amounting to intense disgust at sight of food is not at all uncommon. At the outset of treatment, after first satisfying ourselves of the fact, we must convince the patient that the gastric disturbance is a symptom of his disease; that his stomach and intestines are not organically diseased, but that the whole body is suffering from under-nourishment; that the digestive organs share this weakness, but that after a few weeks of better feeding his digestive functions will improve. This is rather a hard task at times, for these cases not infrequently have thought for months they were suffering from "stomach trouble" and have as a consequence cut off one article of food after another, until nothing but the lightest diet of slops is being taken.

They will often in a few days be able to

take and retain a fair quantity of nourishing food if due persuasion and tact are used and the food served tastefully and in small quantities. Of course, cases of this kind should be kept constantly in bed, and the first day or two probably only a milk diet prescribed. The rest in bed, by reducing the absorption and thus lessening the toxemia, will, in a large measure, relieve the embarrassment of the digestive organs and enable them to take up their proper function. If the digestive system is tolerant, we may push the patient by adding little by little, until after a week or so he is taking full meals. At times this return to larger quantities of food is accompanied by considerable distress, which may be alleviated somewhat by proper medicinal measures, but our course of returning to full meals must be persisted in if possible.

Febrile patients are not exceptions to this rule, and if they can digest the full diet in spite of the fever, it should be allowed. Those patients who can assimilate the general diet improve much more rapidly than those who, perforce of digestive disturbance, are compelled to eat only limited articles of food. In case the digestion is especially bad at the height of the fever, a light meal or liquids may be given at this time, and the large meals given before and after the temperature has risen. Increased nutrition usually produces a drop in temperature, and should it not do so, then the case is indeed a difficult one to benefit.

In feeding cases with impaired digestion it is well to insist upon their eating the staple foods and allow sugars and pastry in very small quantities, if at all. Sweets and pastries, though they may be palatable at the time, will almost surely result in the formation of gas and hyperacidity, with probably nausea and vomiting and total loss of appetite. Fried foods of all kinds are bad and meats are more digestible if cooked without grease and beef served rare. The bulky foods are to be avoided and the diet made as concentrated as is possible.

When vomiting occurs after eating, when not produced by paroxysms of coughing, gastric lavage or withholding food for twelve to twenty-four hours with attention to the bowel movements, will often bring relief. A glass of hot water taken on rising is a splendid thing for the stomach, and is beneficial in many cases.

Diarrhoea, so often a symptom of tuberculosis of the intestines, is a difficult matter to combat. Here the indication is to place as little work as possible on the diseased intestines, but at the same time properly nourish the patient. To meet this end the food served should consist of concentrated foods, bulky articles being religiously avoided. Milk, eggs and meat are our main foods for this condition, and must be served in many different ways, as our aim is to persist in this dietary as long as necessary, and at the same time retain the appetite. If the

indigestion persists under the above diet, it will be necessary to resort to a strictly liquid diet, using perhaps predigested foods. As improvement in the condition takes place the bulkier articles may be slowly added to the menu, and the patient gradually placed on full diet.

* Acute, intercurrent disorders are dieted just as under any other conditions, but we should keep in mind the fact that the patient has tuberculosis, and therefore bears starvation badly.

When the upper portion of the larynx or the pharynx is involved we have a most distressing condition to meet. Deglutition is very often impossible without previous local anesthesia of the pharynx, and even then the patient becomes easily strangled. Here again concentrated food is indicated in order to save the patient pain. If swallowing liquids is very difficult, and frequently liquids produce most difficulty, the patient can often swallow much better if lying flat on the abdomen.

If the cough is so exasperating as to effect the appetite, especially if it interferes with the proper rest at night, appropriate measures for its relief are indicated.

The dietetic treatment of hemorrhage is of considerable importance in that the indications are to reduce the liquid content to the minimum and avoid bulky and stimulating foods. Hot foods are stimulating, hence all food is to be served cold. For the first twenty-four hours

no food whatever should be given if the hemorrhage is a large one. Only sufficient liquid to allay thirst and prevent discomfort is allowed, and this preferably as finely crushed ice in small quantities. At the end of twenty-four hours the diet should be of small bulk, served cold, at slightly shorter intervals than before the occurrence of the hemorrhage, the liquid content kept to a minimum and only milk and water allowed as beverages. After continuing this until all fresh blood has disappeared from the sputum, the general diet may then be gradually replaced. As the recurrence of hemorrhage is often directly due to indiscretion in diet, this should be carefully considered in dealing with the condition.

In tuberculosis we must bear in mind the fact that the condition is one calling for the maximum amount of nourishment with the least possible embarrassment to the organs of digestion and excretion. We should also remember that we are dealing with a chronic process requiring years for recovery, and it is, therefore, necessary to husband at every point the strength of the patient for the fight. Bad advice as to the food necessary will produce bad results. We must be specific in giving advice as to what articles are allowed and what forbidden, and, in addition, we must prescribe the quantities to be consumed. In the management of cases in private practice, there is nothing so helpful to both patient and physician

as a careful daily record kept by the patient as to his hours of rest, etc., the exact amount of food consumed and at what hours. Regularity of meals is one of the great necessities in feeding patients, and eating when not fatigued is of equal importance with regularity.

In conclusion, I should like to add that, however well we may feed our patient or how many hours he spends daily in the open air will not effect the result nearly so much as if *to proper food and fresh air we add REST while the disease is still active.*



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